
December 1, 2022 | 12:00-2:00 PM | MDT Commission Room and Teams

RRC Members

Mack Long, MDT Director
Julie Brown, MDT Deputy Director
Dwane Kailey, Chief Operations Officer
Mike Bousliman, Information Services Division Administrator
Dustin Rouse, Highways and Engineering Division Administrator
Larry Flynn, Administration Division Administrator

Brad Marten, Motor Carrier Services Division, Administrator
Shane Mintz, Glendive District Administrator
Rob Stapley, Rail, Transit, and Planning Division Administrator
Jon Swartz, Maintenance Division Administrator
Matt Strizich, FHWA
David Kack, WTI Director

RRC Members Present: Julie Brown, Dwane Kailey, Mike Bousliman, Dustin Rouse, Brad Marten, Shane Mintz, Rob Stapley, Jon Swartz, Matt Strizich, and David Kack

Others Present: Rebecca Ridenour, Vaneza Callejas, Annette Compton, Andy Cullison, Bob Evans, Lee Grosch, Paul Hilchen, Kathy James, Jen Johnson, Lenci Kappes, Pat Lane, Kaia Rosen

Action items are in red.

Dropped Project

23-017 Drone-enabled Subgrade and Embankment Assessment

Bob Evans, as project champion, attended this meeting to discuss the research, which is recommended by the project technical panel for termination.

He clarified that the technical panel discovered that the project was not a good use of funding for MDT. The research was an extension of a previous project, and it didn't look like it provide significant benefits or offer any unique capabilities to MDT.

Research staff will terminate the project and unobligated the funds.

Research Project Proposals

23-001 Significant Factors of Bridge Deterioration

Andy Cullison, as chair of the technical panel, attended this meeting to present this proposal, which is recommended by the project technical panel for funding.

This research is a logical continuation of the Development of Deterioration Curves for Bridge Elements in Montana research that is currently underway and near completion. Specific factors anticipated to be significant to the deterioration of bridges in Montana may include, location-based environmental factors, type of steel reinforcement in concrete bridge decks, regional or historic construction practices, rehabilitation treatments, etc.

Objectives:

The overall objective of the proposed research is to increase the confidence of deterioration prediction models by applying weighted factors to reflect different environments, traffic characteristics, and bridge types in Montana. Specific objectives are to; 1) Identify significant factors affecting bridge deterioration in Montana. 2) Determine refinements, based on the identified significant factors, to the recently established deterioration curves, and 3) Establish effective data collection, processing, and future research opportunities for improving the accuracy and consistency of Montana's ability to forecast bridge deterioration.

Budget:

The cost of the project is \$98,705.

Mike Bousliman made a motion to fund with \$98,705. Dwane Kailey seconded the motion. All RRC members present voted in favor.

23-006 Use of Fiber-Reinforced Polymer Composites for Bridge Repairs in Montana

Lenci Kappes, as chair of the technical panel, attended this meeting to present this proposal, which is recommended by the project technical panel for funding.

The aging and deteriorating transportation infrastructure requires proven, cost-effective, and efficient repair/strengthening methods, especially when replacement is not feasible due to economic and technical constraints. FRP repair methods are well suited to address this need. These methods have been successfully used by various DOTs across the country; however, research is needed to determine the most appropriate methods for Montana, and to ensure the successful implementation of these methods including the development of appropriate specifications for their use. This research will lead to more confidence in using FRP in bridge repairs in the state and will allow the state to capitalize on the inherent benefits of this material and related repair methods.

Objectives:

The primary objective of the proposed research is to investigate and help implement the use of FRPs to enhance the performance of Montana bridges. Specific objectives of the proposed research include to: (1) conduct an updated and thorough literature review to investigate the feasibility of using FRPs in various bridge applications in Montana, (2) identify the most promising applications of this technology for use in the state, (3) fill any minor research gaps that may affect/limit the successful application in Montana's unique climate, (4) assist in implementing the application(s) of this material in a bridge demonstration project in the state, and (5) monitor the performance of this bridge after the demonstration project. FRP composites could provide a viable solution to Montana's aging infrastructure's repair/strengthening needs. This research will provide the necessary step to capitalizing on the inherent benefits of these composites.

Budget:

The cost of the project is \$260,055.

Discussion:

- Dustin mentioned that both high and low temperature extremes are unique to Montana. Lenci is optimistic that this FRP research will address that question.

Dwane Kailey made a motion to fund with \$260,055. Jon Swartz seconded the motion. All RRC members present voted in favor.

Proposed Research Idea

23-005 An Inventory and Assessment of Bank Stabilization Techniques

Jen Johnson, as project champion, attended this meeting to request funding and move this project to the technical panel stage.

This research would provide a summary and inventory of completed bank stabilization projects and their outcome/success. Projects would be analyzed based on location, river/stream size, local hydrology, and hydraulic characteristics. Design recommendations or guidelines will be made at the end of the study regarding the appropriate treatment selections for stream bank stabilization projects. Multiple sites identified by MDT and recommended by the consultant utilizing various designs by MDT and others should be visited and summarized in a final report. MDT will provide a list of sites to be evaluated in addition to sites that are recommended by the consultant. Assume up to 30 sites will need to be evaluated.

The total project budget is \$83,033. The estimated project period is 12 months.

Dustin Rouse made a motion to fund with \$83,033. Dwane Kailey seconded the motion. All RRC members present voted in favor.

Research staff will proceed with forming the technical panel for this new MDT SPR-funded research project.

Pooled Funds Requests

Solicitation 1587 – Phase II Building Information Modeling (BIM) for Bridges and Structures

Pat Lane attended this meeting to request the RRC consider joining the pooled fund.

This pooled fund project will provide the primary mechanism for AASHTO COBS T-19 to expand and refine the outcomes of TPF-5(372) and developing additional guide specifications for openBIM national data standards to support model-based exchanges of workhorse bridges. This pooled fund will assist in supporting the involvement MDT has made within the industry regarding digital delivery and the creation of openBIM standards.

The commitment amount for this pooled fund study is \$20,000/year for three years (FFY 2023-2025). Iowa DOT leads the study.

Jon Swartz made a motion to join the pooled fund. Mike Bousliman seconded the motion. All RRC members present voted in favor.

TPF-5(464) – Hydrologic and Hydraulic Software Enhancements (SMS, WMS, Hydraulic Toolbox, and HY-8)

Jen Johnson and Annette Compton attended this meeting to request the RRC consider joining the pooled fund.

The Federal Highway Administration (FHWA) sponsors ongoing development of four computer programs that perform both routine and complex hydrologic and hydraulic analyses of watersheds, river and stream

systems, and transportation infrastructure. MDT uses the subject software programs regularly for analysis, and our designs benefit from their maintenance.

This Transportation Pooled Fund (TPF) project will: 1. Enhance the capabilities of the four FHWA sponsored software programs and ensure they remain consistent with the latest FHWA technical reference documents. 2. Update the software user manual documentation. 3. Make new software versions publicly available. 4. Develop and deploy technology transfer materials and workshops to test and demonstrate new software content and features. 5. Inform users of the availability of new software versions and features through website postings, email notifications, newsletter articles, conference presentations, and other avenues.

The commitment amount for this pooled fund study is \$10,000/year for three years (FFY 2023-2025). FHWA leads the study.

Discussion:

- Mike Bousliman asked about the sustainability of the program and vendor management system.

Dustin Rouse made a motion to join the pooled fund. Mike Bousliman seconded the motion. All RRC members present voted in favor.

MDT/MSU/WTI salary contribution and agreement

Dustin Rouse presented the proposed agreement with MSU's engineering department for half of the salary of the WTI executive director position. He explained that MDT had provided this funding in the past.

The funding would provide partial salary and benefits support of the WTI Executive Director to cover the activities related to research collaboration with MDT. Cost estimate: \$50,000 salary, \$12,000 benefits, 25% direct costs (\$15,625) for a total to MSU/WTI of \$78,125. For our budget with ICAP the total is \$86,495. Utilize SPR funds beginning in FFY 2023.

Discussion:

- David Kack clarified that MSU has a preferential or reduced indirect rate with MDT.

Jon Swartz made a motion to fund the third-party agreement. Julie Brown seconded the motion. All RRC members present voted in favor.

Research Program Highlights

TRB – MDT's participation

Rebecca will be participating in the upcoming Transportation Research Board (TRB) event in January. She encouraged more MDT participation in the TRB panels and will be offering a 101 TRB session, in-person and virtually, to garner excitement.

Research Section mission statement

Rebecca updated the group on progress with the Research Section mission and vision statements with HROS. These statements will be posted on the Research web page when finalized and will help with strategic planning.

Open Discussion

UTC funding

David Kack noted that the next round of UTC funding would be announced in January.

Next RRC quarterly meeting is scheduled for March 16, 2023.